108   100   COMPUTING DEVICE

SYSTEM MEMORY   104

ROM/RAM

OPERATING SYSTEM   105

APPLICATION PROGRAMS

106

PROGRAM DATA   107

102

PROCESSING UNIT

REMOVABLE STORAGE   109

NON-REMOVABLE STORAGE   110

INPUT DEVICE(S)   112

OUTPUT DEVICE(S)   114

COMMUNICATION CONNECTION(S)   116

OTHER COMPUTING DEVICES   118
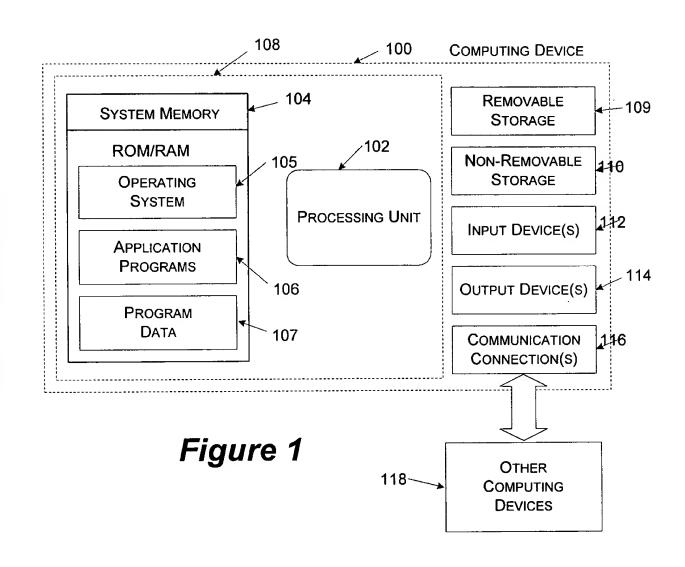
Figure 1

Title: SYSTEM AND METHOD FOR UNLOADING
NAMESPACE DEVICES

ntors: Oshins et al.
Attorney Docket No.: 40062.92USU1

```
                                                    ┌──── 200
        ┌──────────────────────┐
        │   APPLICATION        │
        │   PROGRAMS    106    │
        └──────────────────────┘
                  ↕
        ┌──────────────────┐        ┌──────────────────────┐
        │   KERNEL         │←──────→│  OSPM CODE    203    │
        │           201    │        └──────────────────────┘
        └──────────────────┘
           ↕         ↕           ┌── 202    ┌── 205
  ┌──────────────┐   ┌──────────────────┐        ┌──────────────────────┐
  │ DEVICE DRIVER│←─→│  ACPI DRIVER  ▢  │←──────→│  ACPI NAMESPACE      │
  │         211  │   └──────────────────┘        │                 209  │
  └──────────────┘      ↕    ↕    ↕              └──────────────────────┘
      │                                                      
      │      ┌───────────────────────────────────────────────────────┐
      │      │  ┌──────────────┐  ┌──────────┐  ┌──────────────┐      │
      │      │  │ACPI REGISTERS│  │ACPI BIOS │  │ ACPI TABLES  │      │
      │      │  │        224   │  │     220  │  │        222   │      │
      │      │  └──────────────┘  └──────────┘  └──────────────┘      │
      │      └───────────────────────────────────────────────────────┘
      ↕           ↕                   ↕              ↕
  ┌──────────────────────────────────────────────────┐   ┌──────────┐
  │                                                  │←─→│  BIOS    │
  │          SYSTEM HARDWARE                         │   │     26   │
  │                                          240     │   └──────────┘
  └──────────────────────────────────────────────────┘
```
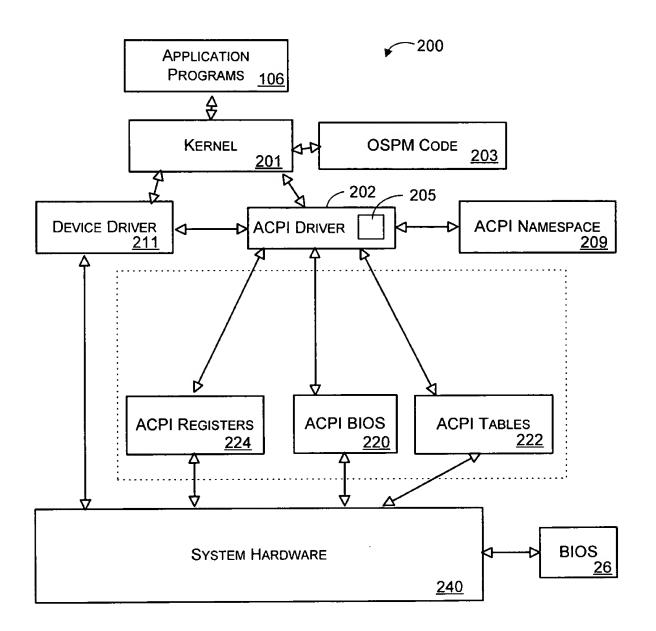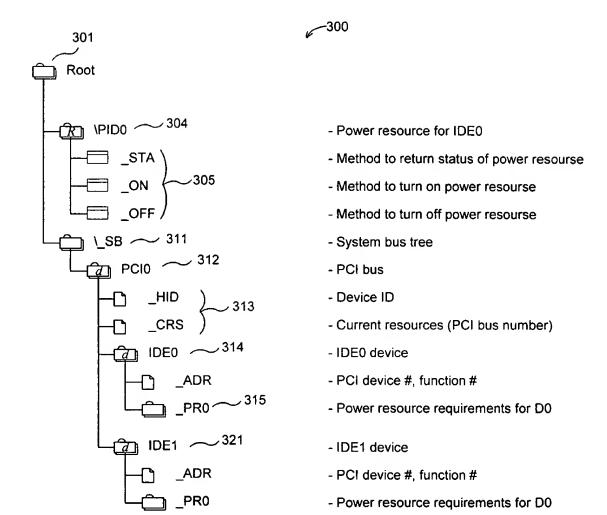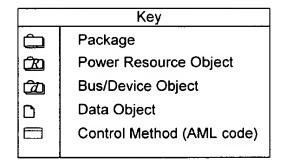
FIG. 2

301

~300

Root

\PID0 ~ 304

_STA

_ON ⎫ ~305

_OFF ⎭

_SB ~ 311

PCI0 ~ 312

_HID ⎫
       ⎬ 313
_CRS ⎭

IDE0 ~ 314

_ADR

_PR0 ~ 315

IDE1 ~ 321

_ADR

_PR0

- Power resource for IDE0

- Method to return status of power resourse

- Method to turn on power resourse

- Method to turn off power resourse

- System bus tree

- PCI bus

- Device ID

- Current resources (PCI bus number)

- IDE0 device

- PCI device #, function #

- Power resource requirements for D0

- IDE1 device

- PCI device #, function #

- Power resource requirements for D0

FIG. 3

Key	
🖿	Package
🖿	Power Resource Object
🖿	Bus/Device Object
🗋	Data Object
🖷	Control Method (AML code)

200

APPLICATION
401

KERNEL   201

AML   205
INTERPRETER

ACPI DRIVER
202

OTHER DATA
STRUCTURES
{INFO ABOUT
OBJECTS IN
NAMESPACE}

406

ACPI NAMESPACE
405

431

A

B

FILTER DRIVER
414

FILTER DRIVER
416

DEVICE
EXTENSION

422

DEVICE OBJECT
420

GPE EVENT MASK

407

412

HARDWARE
DEVICE   410

ACPI REGISTERS
224

FIG. 4

USER
MODE

KERNEL MODE

200

APPLICATION 401

KERNEL 201

DEVICE EXTENSION 422

REF COUNT

POINTER

451

453

ACPI DRIVER 202

431

A

B

ACPI NAMESPACE 405

FIG. 5

```
                    ┌─────────────┐
                    │    BEGIN    │
                    └─────────────┘
              601          │
                           ▼
                  ┌──────────────────┐
                  │  INFORM ACPI     │
                  │  DRIVER OF UNLOAD │
                  │  EVENT           │
              602 └──────────────────┘
                           │
                           ▼
                  ┌──────────────────┐
                  │ IDENTIFY AFFECTED │
                  │ OBJECTS TO ACPI  │
                  │ DRIVER           │
              604 └──────────────────┘
                           │
                           ▼
                  ┌──────────────────┐
                  │ DETACH AFFECTED  │
                  │ OBJECTS FROM     │
                  │ NAMESPACE        │
              606 └──────────────────┘
                           │
                           ▼
                  ┌──────────────────┐
                  │ INFORM ACPI      │
                  │ DRIVER OF        │
                  │ SUCCESS          │
              608 └──────────────────┘
```

NO ← NOTIFICATION FROM ACPI DRIVER — 610

YES

DESTROY OBJECTS AND FREE MEMORY 612

END

FIG. 6

BEGIN
701

RECEIVE NOTICE OF
UNLOAD OPERATION
702

PERFORM PRE-
PROCESSING ACTIVITIES
704

RECEIVE NOTICE OF
AFFECTED OBJECTS
706

INFORM KERNEL OF
AFFECTED OBJECTS
708

710
RECEIVE REFERENCE
COUNT NOTIFICATION?
No

YES

NOTIFY AML INTERPRETER
THAT OBJECTS ARE NO
LONGER BEING USED
712

PERFORM POST-
PROCESSING ACTIVITIES
714

END

FIG. 7